Responses to Comments from the American Chemistry Council (ACC) - Ethylene Glycol Ethers (EGE) Panel

Comments on the Ethylene Glycol Ethers Summary and their placement in Tier 2 were received from the Ethylene Glycol Ethers (EGE) Panel of the American Chemistry Council (ACC) in a letter dated March 28, 2001.

Comment 1: Before providing the information showing the *de minimis* likelihood that infants or children would be disproportionately exposed to EGME, EGEE, EGMEA, or EGEEA, the Panel also calls OEHHA's attention to the importance of naming these compounds more precisely in its prioritization documentation. At various places, the current draft overbroadly refers to "ethylene glycol ethers," or to "glycol ethers (EE and ME but not BE)." It is clear, however, that the only compounds being considered in this review are EGME, EGEE, EGMEA and EGEEA. All references to "ethylene glycol ethers" and "glycol ethers" should be deleted to avoid confusion. As OEHHA is aware, there are many other ethylene glycol ethers that do not exhibit the reproductive and developmental effects seen with these four small molecular weight ethylene glycol ethers.

Response: OEHHA staff initially looked at health effects information on all ethylene glycol ethers and diethylene glycol ethers before focusing on EGME, EGEE, EGMEA and EGEEA. OEHHA is aware that many other ethylene glycol ethers do not exhibit the reproductive and developmental effects seen with these four ethylene glycol ethers. OEHHA staff will delete inappropriate references to ethylene glycol ethers and glycol ethers when the summary is revised based on public and Scientific Review Panel (SRP) comments.

Comment 2: Production of EGME, EGEE, EGMEA and EGEEA for domestic use is small, and use is limited to specific non-consumer products. Based on the SRI International "CEH Marketing Research Report Glycol Ethers (2000)," production of EGEE, EGME and their acetates for domestic use is small (and is outside California); the uses of each are very limited; and none has been used in consumer products for almost two decades. Accordingly,

the possibility of exposure of infants or children to each of these chemicals is unlikely. None is likely to have a disproportionate impact on these populations. In prioritizing chemicals under Health and Safety Code § 39669.5(a), OEHHA is to consider both toxicity and "exposure patterns among infants and children that result in disproportionately high exposure." As the OEHHA draft itself indicates, no such disproportionately high exposure was identified for EGME, EGEE, EGMEA or EGEEA. The OEHHA draft, at page 7, notes that "exposures are dropping" because of reduced production and use, and that "data on emissions ...are incomplete." In the appendix discussion for these four glycol ethers, at pages 4-5, OEHHA notes only that CARB reported in 1999 emissions for EGEE of 443,748, EGEEA of 66,851, EGME of 7,398, and EGMEA of 3,060 pounds.

None of the cited data indicates any disproportionately high exposures. Indeed, the cited data likely over-report any potential exposure. First, neither EGME, EGEE, nor EGEEA is manufactured in California. Each is manufactured only in Louisiana or Texas. No domestic manufacturer today manufactures any EGMEA. Second, production of the remaining three compounds for domestic use is small. The SRI reports (at pp. 28-36), 1999 production for EGME of 3 million pounds and for EGEE of 53 million pounds (all but 1 million of which is used to manufacture EGEEA), and almost all EGEEA production is exported (and thus could not cause exposures in California). SRI (at p. 36) reports that all but 1 million of the manufactured pounds of EGEEA are exported.

In short, there is in the United States very little EGME, EGMEA, EGEE or EGEEA production or use that would cause anyone in California, let alone infants and children, to be disproportionately exposed.

Response: EGME, EGEE, EGMEA, and EGEEA are on the list because of their likely toxicity, not to infants and children post-natally, but pre-natally. Actual toxicity data on teratogenic effects in immature mammals are available, so both EGME and EGEE are listed under Proposition 65 as developmental toxicants (and also as male reproductive toxicants). Some experts believe that use of EGME and EGEE should be completely phased out because of their toxicity.

The acute and chronic RELs for the 4 chemicals are in the range of 60 to 370 $\mu g/m^3$, which indicates moderate toxicity. While such levels will not be attained state wide, they might occur near specific industrial sources ("Hot Spots"). As stated in the summary, in the most recent reporting year 443,748 pounds of EGEE, 7398 pounds of EGME, and 2,922,744 pounds of the general category glycol ethers, which could include EGEE and EGME, were emitted from Hot Spots facilities in California. It would be helpful to have the specific glycol ethers in the 2,922,744 pounds speciated in the emissions inventory reports, but that is not how all facilities have reported their emissions of glycol ethers in the Air Toxics Hot Spots program.

The comment alleges that none of the cited data indicates any disproportionately high exposures. However, facilities studied as a result of AB2588, the Air Toxic Hot Spots Information and Assessment Act, may cause disproportionately high exposures. The June 1991 Air Toxics Hot Spots risk assessment for airborne emissions from Northrop Corporation, Aircraft Division West Complex in El Segundo, California reported annual emissions of 4,585 lbs. of glycol ethers (presumably EGME) and estimated that the maximum off-site 1 hour concentration of glycol ethers was 268 $\mu g/m^3$, clearly exceeding the current acute REL. Although the facility currently does not report use of EGME, its most recent air toxics emissions inventory, approved November 29, 2000 by the South Coast AQMD, listed 6,830 lbs./yr. of EGEE and 9.38 lbs./yr. of EGEEA (plus 4170 lbs./yr. of EGBE).

Also the June 1991 Air Toxics Hot Spots risk assessment for airborne emissions from Northrop Corporation, Aircraft Division in Hawthorne, California reported annual emissions of 755 lbs. of glycol ethers (presumably EGME) and estimated that the maximum off-site 1 hour concentration was 587 $\mu g/m^3$, clearly exceeding the acute REL. Although this facility currently does not report use of EGME, its most recent air toxics emissions inventory, approved November 29, 2000 by the South Coast AQMD, listed 6,830 lbs./yr. of EGEE and 9.38 lbs./yr. of EGEEA (plus 4170 lbs./yr. of EGBE).

The comment notes that the law requires OEHHA to consider "exposure patterns among infants and children that result in disproportionately high exposure." In the introduction to the draft report we describe information that shows children breathe more air, drink more fluids and eat more food per unit body weight than adults. These facts alone indicate that in any given environment, children have higher exposures in general than adults.

Comment 3: Neither EGME, EGEE, EGMEA, nor EGEEA has for two decades been used in consumer products. The information indicates that the only potential exposure of California infants and children to EGME, EGEE, EGMEA or EGEEA would be exposure to the 3 million pounds of EGME or the 1 million pounds each of EGEE and EGEEA manufactured in Texas or Louisiana (and not exported), if and when they were used in California. Such exposure is quite unlikely.

As the U.S. Consumer Product Safety Commission (CPSC) has found on several occasions over the past two decades, the small molecular weight ethylene glycol ethers are not being used in consumer products. The CPSC has tried to find these chemicals in such products. It has reported that it found none.

The limited uses remaining for these small volume chemicals are unlikely to lead to exposure to infants or children. As SRI reports (at pp. 29, 33, 36), the small use of EGEE is in non-consumer solvents for paints, coatings and other industrial uses; the only remaining domestic use of EGEEA is in machinery and equipment paints and coatings; and the only remaining use of EGME, other than as a chemical intermediate, is as a jet fuel deicer. None of these uses is likely to lead to any - let alone any disproportionately high - exposure of children or infants.

Response: It is reassuring that these reproductive and developmental toxicants are not used in consumer products. However, they are used by industrial facilities and emitted into the air as evidenced by facility emissions inventories conducted under the Air Toxics Hot Spots Act. As stated above, OEHHA is concerned about the inherent toxicity of EGME, EGEE, EGMEA

and EGEEA and exposures of the general public including infants and children to these compounds in the air near stationary sources.

Comment 4: Conclusion: EGME, EGEE, EGMEA and EGEEA should be deleted from California's priority list. Given the fact that infants or children in California are very unlikely to be exposed disproportionately to EGME, EGEE, EGMEA or EGEEA, the Panel urges OEHHA to delete these four compounds from its priority list. The State's resources should not be expended on these low volume, specialized use chemicals for which exposures to infants or children, if they exist at all, would likely be *de minimis.*

Response: OEHHA thanks the Council for its comments and will consider its comments and those of the SRP when finalizing its list. The current draft does not propose to place EGME, EGEE, EGMEA, and EGEEA on the list at this time.